



Current Status of Marine Fish and Shellfish Backyard Hatcheries in Thailand

Montakan Tamtin
Senior Fisheries Biologist

Department of Fisheries, Thailand



Thailand : ranks among the world's top 10 nations in the fishing industry (total catch and export)



• 800 kilometer Indian Ocean

• 1,800-kilometer Gulf of Thailand coasts

• a huge brackish water areas of about 100,000 ha

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Aquaculture Production of Thailand from 2004-2007 (ton)

| Type/Year | 2004 | 2005 | 2006 | 2007 |
|-------------------------------|------------------|------------------|------------------|------------------|
| Black Tiger shrimp | 106,900 | 90,000 | 15,000 | 10,000 |
| White shrimp | 251,700 | 370,000 | 434,000 | 475,000 |
| Giant Freshwater prawn | 32,600 | 30,000 | 30,000 | 31,000 |
| Sea Bass | 13,600 | 13,000 | 14,000 | 15,000 |
| Tilapia | 160,200 | 101,000 | 105,000 | 120,500 |
| Catfish | 160,000 | 114,500 | 101,000 | 130,000 |
| Shellfish | 400,400 | 342,850 | ND | ND |
| Others | 535,000 | 450,000 | 475,000 | 493,600 |
| Total | 1,660,400 | 1,511,350 | 1,279,000 | 1,395,600 |

Source :Department of Fisheries, Thailand (2007)

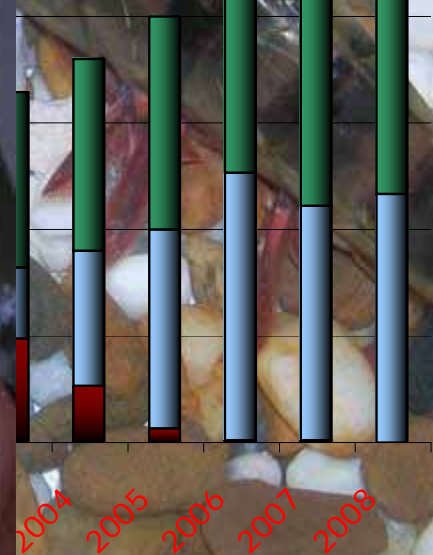
Aquaculture Status of Marine Shrimp in Thailand:

2007 produce 0.48 million ton, export 78%

P. Vannamei 99.59%
P. Monodon 0.41%

Production

1,200,000
1,000,000



■ Total
■ White shrimp
■ Black Tiger shrimp

DOF, 2008



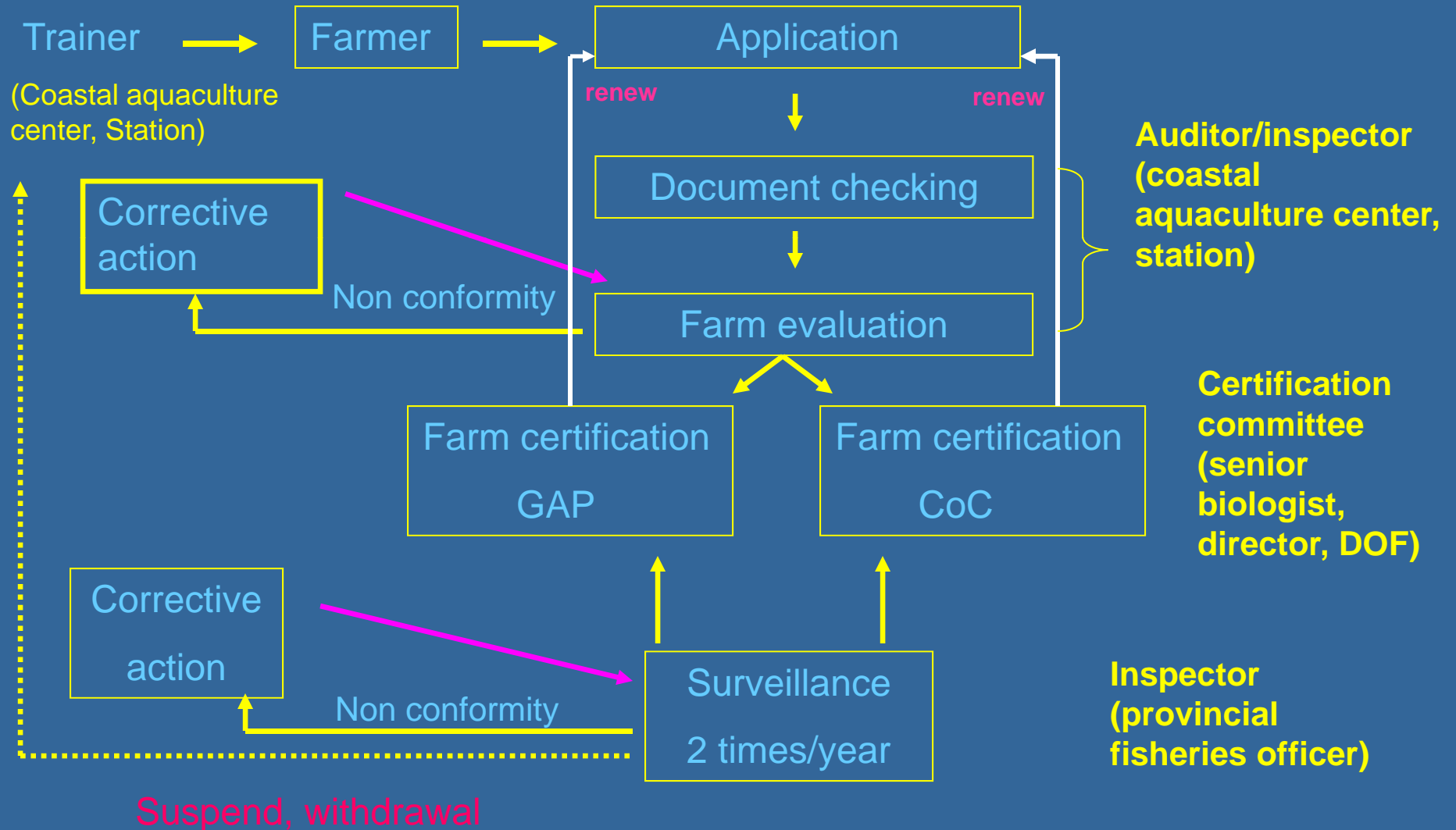
Advantages of backyard hatcheries

- Low construction and operating cost
- Flexibility to switch from one species to others
- Flexibility to start/stop operation
- Separated to many sectors

Disadvantages

- Low technology
- Vulnerable to diseases and pollution
- Lack of money to improve the facilities

Establishment of certification system



ร.ล. 0-47-0016



ใบรับรอง



CoC : Code of conduct for hatcheries

(Code of Conduct Shrimp Hatchery)

Topic concerned: same as GAP standard but include more topics on

- Water and waste treatment

- Responsibility to the community

ให้ใบรับรองเพื่อแสดงว่า

ฟาร์มของ.....ศูนย์วิจัยและพัฒนาประมงชายฝั่งประจวบคีรีขันธ์.....

ที่อยู่..... หมู่..... ถนน..... ตำบล..... อเภ..... อำเภอ..... จังหวัด..... ประจวบคีรีขันธ์.....

ได้ดำเนินการตามมาตรฐาน..... (Code of Conduct)

มีผลบังคับใช้ตั้งแต่วันที่..... เดือน..... พ.ศ. 2547 ถึงวันที่..... เดือน..... พ.ศ. 2549.....

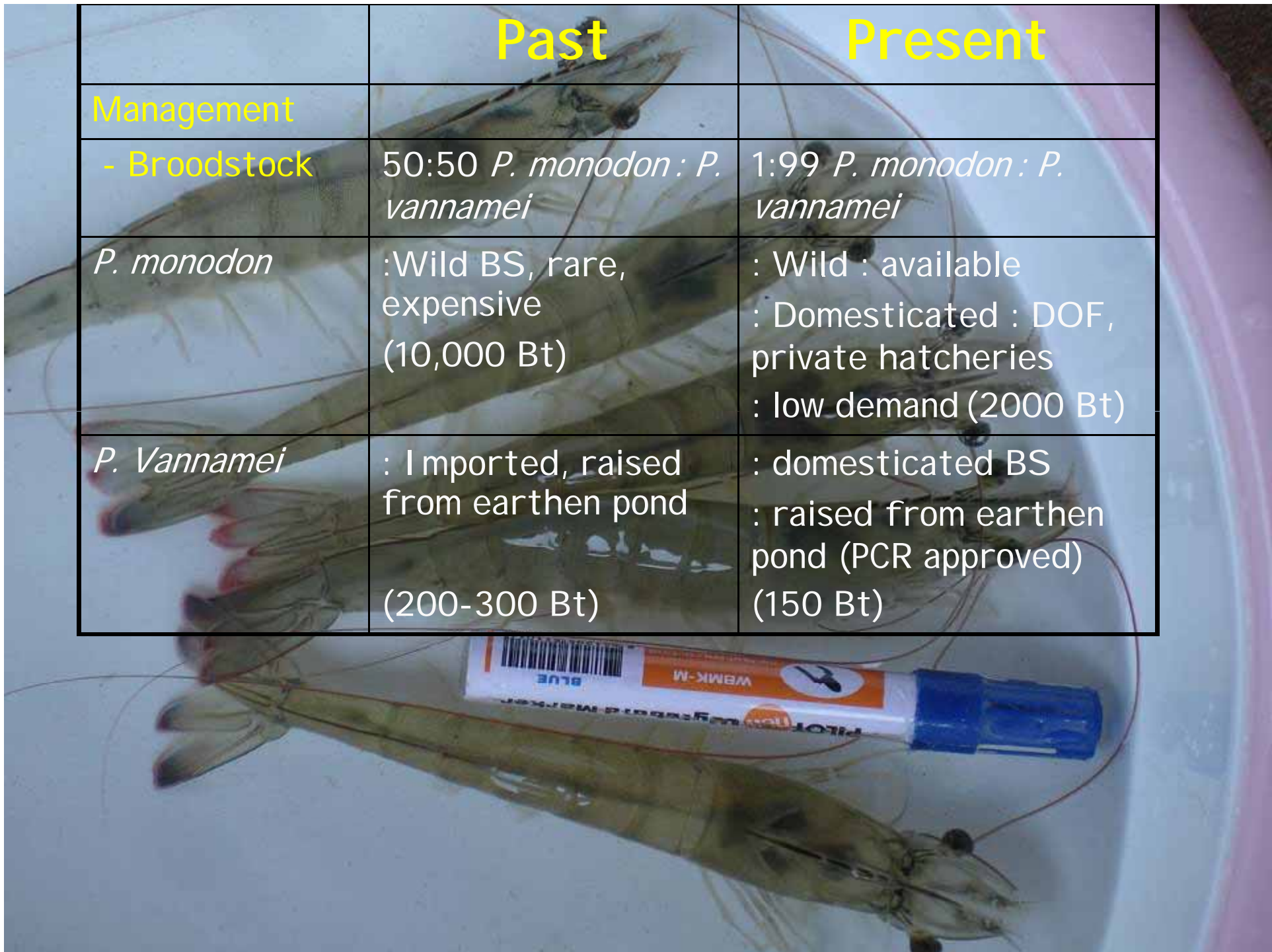
ให้ไว้ ณ วันที่..... เดือน..... พ.ศ. 2547.....

(ดร. อธิษฐ์ บุญปรัตตสิน)
อธิบดีกรมประมง



| | Past | Present |
|----------------|-----------------------------------|--|
| Number | 10,000 | 2,000-3,000 (1,000) |
| Species | <i>P. vannamei</i> | 99% |
| | <i>P. monodon</i> | 1% |
| | <i>Lates calcarifer</i> | |
| | Etc. | |
| Culture system | Batch system | Batch system |
| Water system | Simple, no water mangement system | Water treatment system, no antibiotics |





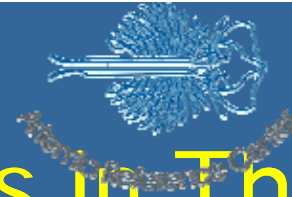
| | Past | Present |
|--------------------|--|--|
| Management | | |
| - Broodstock | 50:50 <i>P. monodon</i> : <i>P. vannamei</i> | 1:99 <i>P. monodon</i> : <i>P. vannamei</i> |
| <i>P. monodon</i> | : Wild BS, rare, expensive (10,000 Bt) | : Wild : available : Domesticated : DOF, private hatcheries : low demand (2000 Bt) |
| <i>P. Vannamei</i> | : Imported, raised from earthen pond (200-300 Bt) | : domesticated BS : raised from earthen pond (PCR approved) (150 Bt) |

| | Past | Present |
|-------------|---|--|
| Price | <i>P. Monodon</i> 0.10 st <i>P. Vannamei</i> 0.12 st | : different between big: small hatcheries (0.08-0.1 st, 0.05-0.06st) |
| | | : cluster |
| | | : reduced no. of small hatcheries |
| Production | 100,000 mlPL/year | 77,437 million PL/year |
| SVR (%) | 30-50% (30-40%) | 40-80% (50-60%) |
| Predictable | no | yes |



Backyard shrimp hatcheries in Thailand:

- Species : *Penaeus vannamei*
- : *Peneaus monodon*
- Major area : Chachoengsao,
- : Chonburi,
- : Phuket,
- : Nakhon Sri Thammarat



Typical backyard shrimp hatchery in Thailand



: Broodstock tanks, hatching and nursery tanks, live food tanks, water stocking and treatment tanks, discharged water treatment tanks

: no difference in zootechnique

: Batch systems is being used

: both *P. vannamei* and *P. monodon* are produce in the same hatchery, using the same facility

: the main species produced is *P. vannamei*, while *P. monodon* is produced according to order





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P. vannamei

: Broodstocks – domesticated
broodstock

: 70,000 nauplii/broodstock (100,000-
180,000)

: HR 70-80%

: Survival rate to PL \geq 50% (60-80%)

: 5-6 million PL/crop

: 6-7 crops/year (10)

: 42,000,000 PL/year

P. monodon

: Wild Broodstocks

: better quality and
availability of broodstock
due to lower demand

: PCR check

: HR 70-80%

: SVR 50%

: 3 million PL/crop

: 5-6 crops/year

Trends

1. Clustered of hatcheries, decrease of small hatcheries
2. The DOF promote the producing of domesticated BS
3. Most of hatcheries are GAP
4. Revised of certification system and moveing toward ISO

Backyard fish hatcheries in Thailand:



Chachoengsao

Chonburi

Major species: *Lates calcarifer*
(Asian sea bass)



Total > 60 hatcheries

11.08.2009

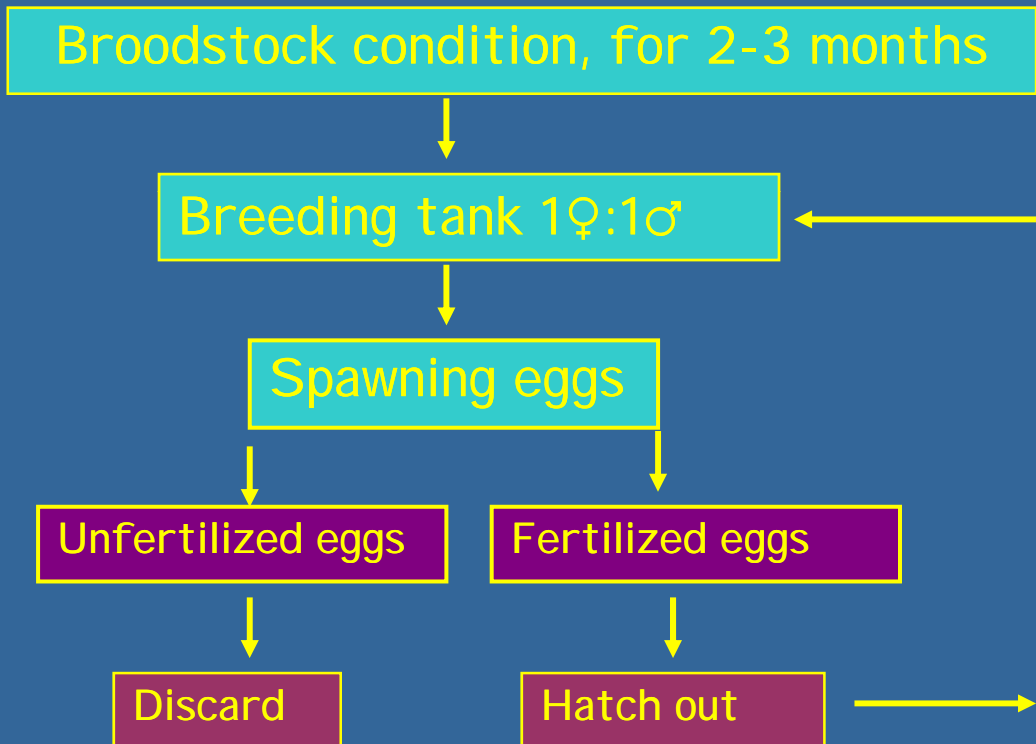


Management



: Domesticated broodstock
 cage culture
 : fed with squid, clam 1-3% of BW
 + vit E/C twice a week

natural or induced spawning
 through hormonal injection



Production 120,000,000 fingerlings/year/hatchery

Batch systems

: Broodstock tanks 100%/2-3 days

: fingering (2-3 inches) Nursing tanks 100%/day



Rotifer, artemia, copepod, mince fish, AFdiets

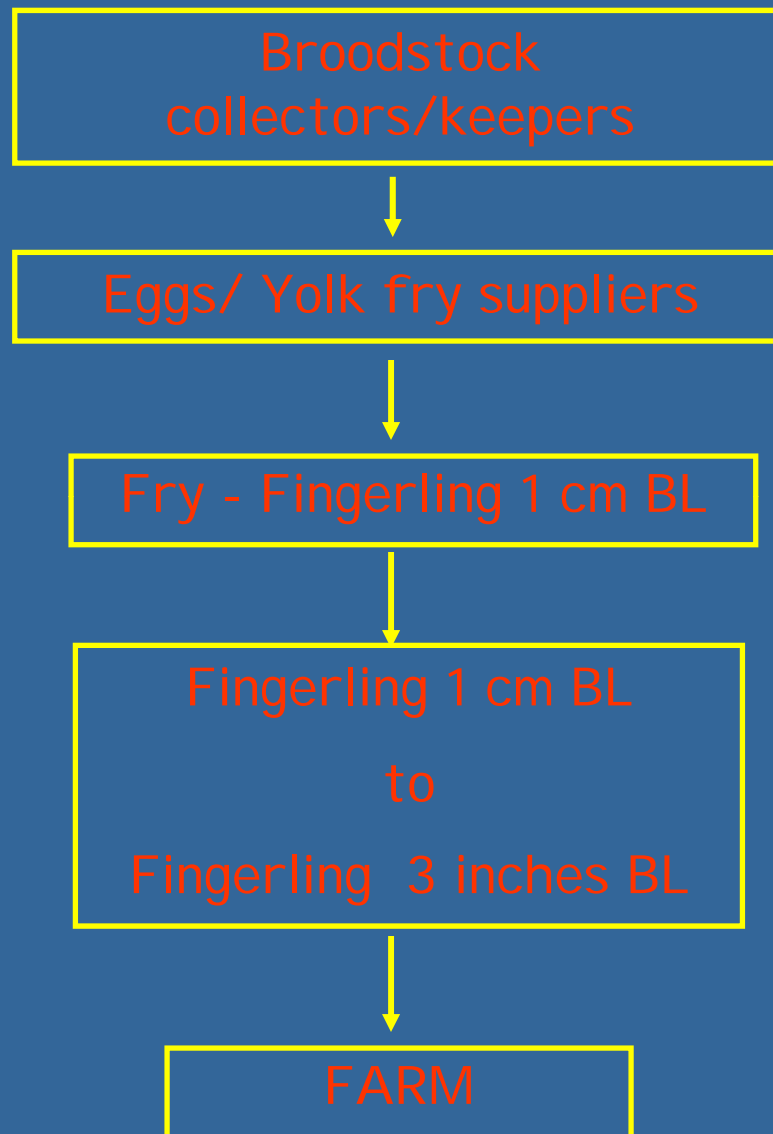


- : 200,000-1,000,000 fingerling/broodstock
- : 10 million fingerling (15 days)/crop
- : 12 crops/year
- : 120 million fingerling/year
- : SVR to 15 days fingerling 40%

29.07.2009

29.07.2009

Sectors in seabass hatcheries





Backyard mollusk hatcheries in Thailand:





Backyard mollusk hatcheries in Thailand:

Number 25 hatcheries

Production 500,000 pieces/year/hatchery

Species: *Babylonia aereolata*,
Haliotis asinina

Area: Phuket, Rayong, Chumporn





Haliotis diversicolor



Haliotis asinina

25 3 2005

- Taiwanese species *Haliotis diversicolor* was introduced to Thailand since the year 2002.
- Nowadays, only *H. asinina* and *H. diversicolor* are being culture in Thailand.
- *H. diversicolor* : Andaman sea 4 hatcheries
- *H. asinina* : East coast Gulf of Thailand 1 hatchery, Thai Gulf 1 hatchery, Andaman sea 1 hatchery





Thank you
for
your attention

“Sawaddee Kha”



Potential species for backyard hatcheries:

Portunus pelagicus (Blue swimming crab)

- : high demand
- : Broodstocks are collected from wild
- : Domesticated broodstocks is being developed
- : SVR (to young crab) is unpredictable 0-40% (10-20%)
- : no private hatchery





- High demand
- 1999 fishing crab 41,250 ton (11.6% decreasing) (DOF, 2003)
- Juvenile, berried crab were largely exploited
- Price is increased from 35 Bt/kg (0.7 EURO) up to 150–350 Bt/kg (4–10 EURO)

Acknowledgements

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- Mr.Tanet Poomthong Head of Phetch Buri Fisheries Research and Test Center

Antibiotic residues monitoring program

Four antibiotics are monitoring:

| Antibiotics | Limit | Method | Year |
|-----------------|----------|----------|------|
| Oxytetracyclin | 0.1ppm | HPLC | 1995 |
| Oxolinic acid | 0.02 ppm | HPLC | 1995 |
| Chloramphenical | 0.3ppb | ELISA | 2002 |
| Nitrofurans | 1 ppb | LC MS MS | 2002 |



Antibiotic residues monitoring program

